

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
DORITY & MANNING
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GREENVILLE, SC 29601

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

| | | |
|--|---|---|
| Applicant's or agent's file reference USC-17-PCT | | Date of mailing (day/month/year) 21 FEB 2007 |
| FOR FURTHER ACTION See paragraph 2 below | | |
| International application No. PCT/US04/43742 | International filing date (day/month/year) 23 December 2004 (23.12.2004) | Priority date (day/month/year) 31 December 2003 (31.12.2003) |
| International Patent Classification (IPC) or both national classification and IPC IPC: G01J 3/28(2006.01) USPC: 356/326 | | |
| Applicant MINEY ET AL. | | |

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

| | | |
|--|--|---|
| Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201 | Date of completion of this opinion 25 January 2007 (25.01.2007) | Authorized officer Gregory J Toate Telephone No. (571) 272-2800 |
|--|--|---|

Form PCT/ISA/237 (cover sheet) (April 2005)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/43742

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in electronic form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/43742

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|---------------------|-----|
| Novelty (N) | Claims <u>1-9</u> | YES |
| | Claims <u>10-22</u> | NO |
| Inventive step (IS) | Claims <u>1-9</u> | YES |
| | Claims <u>10-22</u> | NO |
| Industrial applicability (IA) | Claims <u>1-22</u> | YES |
| | Claims <u>NONE</u> | NO |

2. Citations and explanations:

Claims 10-22 an inventive step under PCT Article 33(3) as being obvious over Pletcher et al. (USPN '526, hereinafter Pletcher).

Pletcher discloses an electrode (base substrate) with a film (porous) disposed on it and a reflective material (gold) disposed on the porous film in order to detect the level of carbon dioxide in a fluid under test (col. 8, lines 3-66). The determination of the size of the pores in the porous membrane would have obvious to someone of ordinary skill in the art depending on the density of the fluid being detected.

Claims 1-9 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest directing light from a source into the electrode from proximate the base substrate in a direction of the gold film, the gold film under the potential configured to reflect the light into the quantity of the liquid or gaseous matter in the pores for analysis of the reflected light including the other limitations of claim 1.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/43742

| A. CLASSIFICATION OF SUBJECT MATTER IPC: G01J 3/28(2006.01) USPC: 356/326 According to International Patent Classification (IPC) or to both national classification and IPC | | |
|---|---|--|
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 356/327,328,329,330 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | US 5,071,526 A (Pletcher et al) 10 December 1991 (10.12.1991) | entire document |
| A | US 4,891,574 A (Nagaya et al) 2 January 1990 (02.01.1990) | entire document |
| A | US 5,831,742 A (Watson et al) 3 November 1998 (03.11.1998) | entire documents |
| A | US 6,630,663 B2 (Murphy et al) 7 October 2003 (07.10.2003) | entire document |
| A | US 4,704,536 A (Sugiyama et al) 3 November 1987 (03.11.1987) | entire document |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex. | | |
| * Special categories of cited documents: | | |
| "A" | document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "E" | earlier application or patent published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "L" | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" | document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family |
| "P" | document published prior to the international filing date but later than the priority date claimed | |
| Date of the actual completion of the international search 25 January 2007 (25.01.2007) | | Date of mailing of the international search report 21 FEB 2007 |
| Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201 | | Authorized officer Gregory J Toatley, <i>Gregory J Toatley</i> Telephone No. (571) 272-2800 |